

## CLAIMS

1. A method of operating a power supply system comprising:

5 calculating an input power of a power supply system; and  
using the input power to regulate an output voltage of  
the power supply system to a desired value.

2. The method of claim 1 wherein using the input power  
10 to regulate the output voltage includes using the input power  
to modulate drive pulses to a power switch of the power supply  
system.

3. The method of claim 1 wherein calculating the input  
15 power of the power supply system includes generating a power  
signal that is representative of the input power and summing  
the power signal with a feedback signal that is representative  
of the output voltage.

20 4. The method of claim 1 further including using a  
signal representative of an input voltage for brow-out  
detection.

5. A method of forming a power supply controller:  
25 coupling the power supply controller to receive a first  
signal representative of an input voltage and a second signal  
representative of an input current and responsively form a  
power signal representative of an input power;  
coupling the power supply controller to receive a  
30 feedback signal representative of an output voltage; and  
coupling the power supply controller to form drive pulses  
to regulate the output voltage responsively to the power  
signal and the feedback signal.

6. The method of claim 5 wherein coupling the power supply controller to form drive pulses to regulate the output voltage responsively to the power signal and the feedback signal includes coupling the power supply controller to sum  
5 the feedback signal with the power signal.

7. The method of claim 5 wherein coupling the power supply controller to receive the first signal representative of the input voltage and the second signal representative of  
10 the input current and responsively form the power signal includes coupling a multiplier to receive the first signal and the second signal and responsively form the power signal.

8. The method of claim 5 wherein coupling the power  
15 supply controller to form drive pulses to regulate the output voltage includes coupling the power supply controller to divide the power signal by the feedback signal.

9. The method of claim 5 wherein coupling the power  
20 supply controller to form drive pulses to regulate the output voltage responsively to the power signal and the feedback signal includes coupling the power supply controller to sum the feedback signal with the power signal to form a power feedback control signal.

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10. The method of claim 9 wherein coupling the power supply controller to sum the feedback signal with the power signal further includes coupling an error amplifier to receive the power feedback control signal and responsively form an  
30 error signal and also includes coupling a comparator to receive the error signal and the second signal to modulate a duty cycle of the drive pulses.

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11. The method of claim 5 wherein coupling the power supply controller to form drive pulses to regulate the output voltage responsively to the power signal and the feedback signal includes coupling the power supply controller to  
5 regulate the output voltage within at least plus or minus ten per cent of a desired value.

12. The method of claim 5 wherein coupling the power supply controller to receive the first signal representative of the input voltage and the second signal representative of  
10 the input current and responsively form the power signal includes coupling a brown-out detection circuit of the power supply controller to receive the first signal.

13. The method of claim 5 wherein coupling the power supply controller to receive the first signal representative of the input voltage and the second signal representative of the input current and responsively form the power signal includes coupling the power supply controller signal to  
15 responsively form the power signal having a haversine waveform.

14. The method of claim 5 wherein coupling the power supply controller to form drive pulses to regulate the output  
25 voltage responsively to the power signal and the feedback signal includes coupling the power supply controller to maintain input power substantially constant during an overload condition.

15. A power supply controller comprising:  
30 a multiplier coupled to receive a voltage representative of an input voltage and receive a current sense signal representative of an input current and responsively form a power signal representative of an input power;

a PWM controller of the power supply controller coupled to form drive pulses to regulate an output voltage; and

an error block of the power supply controller coupled to receive the power signal, a feedback signal, and the current sense signal and responsively control the PWM controller to form the drive pulses.

16. The power supply controller of claim 15 wherein the error block of the power supply controller coupled to receive the power signal, the feedback signal, and the current sense signal includes an input of the power supply controller coupled to sum the power signal and the feedback signal.

17. The power supply controller of claim 15 further including a brown-out detector coupled to receive the voltage representative of the input voltage.

18. The power supply controller of claim 15 wherein the error block of the power supply controller coupled to receive the power signal, the feedback signal, and the current sense signal includes an amplifier coupled to receive the power signal and the feedback signal and responsively form a voltage on an output of the amplifier.

19. The power supply controller of claim 18 further including a comparator coupled to receive the current sense signal and the voltage on the output of the amplifier and modulate a duty cycle of the drive pulses.

20. The power supply controller of claim 15 wherein the error block of the power supply controller coupled to receive the power signal, the feedback signal, and the current sense signal includes an amplifier coupled to receive the feedback signal and responsively form an output, and also includes a

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divider coupled to divide the power signal by the output of the amplifier.